

REMARKS

Claims 1, 11-13, 16 and 22-26 are now pending in the application. Claims 22-28 have been added and are supported in the specification as filed. No new matter has been added. Applicants would like to point out that this Amendment provides additional changes to the amended claims filed in the Amendment filed April 10, 2008 and is including an Appendix to this Amendment with the additional changes provided in bold text. The bold text is provided to merely show difference and does not provide an emphasis on any subject matter.

Rejections Under 35 USC 102(b)

The Official Action rejected Claims 1, 11-13 and 16 under 35 USC 102(b) as being anticipated by Trull (hereinafter "Trull"). This rejection is respectfully traversed.

Applicants' invention of Claim 1 is directed to a syringe including a plunger movably disposed within the body, the plunger comprising:

- a cylindrical wall having a circumferentially continuous inner surface and an outer surface, the inner surface defining a retaining shoulder formed and extending along the circumference of the cylindrical wall; and

- a plurality of inwardly projecting flanges fixedly disposed on and radially spaced along the radially continuous inner surface of the cylindrical wall, the plurality of inwardly projecting flanges extending in a longitudinal direction proximal to the retaining shoulder,

- wherein the inwardly projecting flanges are continuously supported in the longitudinal direction by the radial continuous inner surface of the cylindrical wall,

- wherein the outer surface is defined by a wall that is planar in axial and annular directions.

The Office Action indicates that in Figures 2 and 4 Trull discloses a syringe having a body and a plunger 24 comprising a wall/base member 80 having an outer

surface 82 and inner surface 80 defining a retaining shoulder 86 and inwardly projecting flanges/connection members 30 which are fixedly disposed on the retaining shoulder spaced along the inner surface of the cylindrical wall; wherein at least one retaining member on the drive member is adapted to engage with the retaining shoulder to enable the drive member to retract the plunger.

However, for a prior art reference to anticipate a claim, the reference must disclose each and every element of the claim with sufficient clarity to prove its existence in prior art. The disclosure requirement under 35 USC 102 presupposes knowledge of one skilled in art of claimed invention, but such presumed knowledge does not grant license to read into prior art reference teachings that are not there. See Motorola Inc. v. Interdigital Technology Corp., 43 USPQ2d 1481 (CAFC 1997).

Trull does not teach each and every element of Applicants' claims. Trull discloses in Fig 4 that:

The proximal face 86 of the plunger body includes a circumferential surface portion 88. An array of circumferentially spaced-apart flexible resilient engagement members 30 is joined to the circumferential surface portion 88 of the proximal face of the plunger body and rearwardly extends therefrom to a rearmost extremity 90. Each of the flexible resilient members has a shank portion 92 rearwardly extending from the circumferential surface portion 88 and terminating in a tail hook portion 94 including a transversely and radially inwardly extending retention surface 96 for matably engaging with a rear circumferential surface of the driving head of the injector when the driving head is operatively coupled with the plunger.

Therefore, Trull discloses members 30 that extend from the proximal face of the plunger so that one end attaches to the face and terminates at the extremity 90. And, extremity 90 is not connected to any part of the circumferential portion 88, therefore creating a flexible resilience for member 30, essentially unsupported at all in the longitudinal direction. These members 30 are flexible because they are not supported along shank 92 or at terminating portion 94. Trull discloses that the flexible resilient engagement members 30 are flexible in the radial direction and does not disclose "a plurality of inwardly projecting flanges fixed disposed" and "continuously supported in the longitudinal direction by the radial continuous inner surface of the cylindrical wall" as in

Applicants' invention.

Further, the Office Action alleges that "since portion 88 is a component of 80 (the inner wall), it is clear that Trull disclose the flanges being supported by the inner surface of the cylindrical wall." (Page 3, para 3, 6-7). However, circumferential surface portion 88 is disposed on the proximal face 86 of the plunger (see Col. 7, lines 17-18), and also does not extend in any longitudinal direction, and thus can provide no support or connection in the longitudinal direction. Further, Trull discloses an "array of circumferentially spaced-apart flexible resilient engagement members 30" (see Fig. 4), provides a discontinuous surface. This very different than Applicants' invention that includes "the circumferentially continuous inner surface of the cylindrical wall."

The Office Action also alleges that "Applicant themselves point out 'essentially Trull discloses flexible resilient members (30) that extend from the circumferential surface portion 88.'" Applicants are continuing to point out that Trull does disclose "flexible" members that are not supported in the longitudinal direction by the circumferentially continuous surface. Thus, Trull does not anticipate Applicants' invention of Claim 1.

Further, Claim 1 has been amended to include that "the outer surface is defined by a wall that is planar in axial and annular directions" and support for this amendment can be found in Fig 130A and in the specification as filed page 66, second paragraph. Trull, however, does not disclose such outer surface. Rather, Trull's surface includes a hard plastic cover 82, outer circumferentially continuous edge surface 84 and circumferential surface 88 extending to extremity 90. Therefore, the surface of Trull is discontinuous in both the axial and annular directions. Accordingly, Trull does not disclose Applicants' invention of Claim 1.

Regarding Claim 13, the Office Action alleges that Trull discloses "wherein at least one retaining member on the drive member is adapted to engage with the retaining shoulder to enable the drive member to retract the plunger, and wherein the inwardly projecting flanges are adapted to engage the engaging flange members on the drive when the syringe is rotated about its longitudinal axis operable to cause the retaining member to disengage the retaining shoulder (column 6, lines 46-56)."

However, Trull discloses that the "face plate adapter assembly has a front face 68 with a cylindrical cavity 70 therein and a front slot opening 72 communicating therewith. The face plate adapter assembly as hereinafter described more fully, comprises a lifting ring 74, the purpose of which is to radially outwardly deform the flexible resilient engagement members 30 of the plunger 24 so that the flexible resilient engagement members thereby interact with the face plate adapter assembly 66 to permit engagement (and correspondingly, upon retraction of the ram tip and driving head, disengagement) of the plunger with the driving head." Trull discloses a system that using a lifting ring 74 to push the members 30 so it engages with the face plate assembly 66. The members 30 do not engage the drive member, and particularly there is no structure in Trull that does this when the syringe body is rotated. Thus, Trull is completely different that Applicants' invention which includes "wherein the plurality of inwardly projecting flanges on the cylindrical plunger wall are adapted to engage the one or more outwardly extending flange members on the drive member when the syringe body is rotated about its longitudinal axis, the one or more outwardly extending flange members operable to cause the at least one retaining member on the drive member to disengage the retaining shoulder on the cylindrical wall of the plunger upon rotation of the syringe body."

Further, Trull does not disclose "the plurality of inwardly projecting flanges extend inwardly a length to decrease a circumference formed by the circumferentially continuous inner surface" of Applicants' invention. Applicants' invention includes that:

The base member 7912 preferably includes one or more, and preferably a plurality, of inwardly projecting flanges 7702 spaced around the inner surface thereof and extending rearward from the ledge or retaining shoulder 7918. The flanges 7702 may be evenly or randomly spaced around the plunger 7910. The flanges are adapted to engage one or more outwardly extending flange members 7704 (see Figures 130B and 130C) disposed on the abutment section 7540 of the piston 7520, preferably at a position forward of a forward facing flange or ledge 7546 thereof. In a preferred embodiment, the one or more flange members 7704 define a sloped edge 7705 to facilitate engagement with the inwardly projecting flanges 7702 on the plunger 7910. Further, in a preferred embodiment, the piston 7520 includes fewer flange members 7704 than the plunger 7910 includes flanges 7702. (page 66, 3rd paragraph).

Trull discloses something completely different. Namely, as shown in Fig. 6, the engagement members 30 are flexible and extend no further than the inner surface 80, for example, retention surface 96 is actually further outward from the proximal face 86, and, therefore **increases the circumference of the inner surface**. In fact, "[t]he purpose of such radial inset of the engagement members 30 is so that such engagement members do not contact interior surfaces of the syringe barrel during translation of the plunger forwardly or rearwardly through the syringe barrel." (Col. 7, lines 49-54). Trull, therefore does not disclose Applicants' invention.

Additionally, Trull does not disclose Applicants' invention of Claim 13, including "a cylindrical wall having an inner surface defining a retaining shoulder formed along an axial length thereof; and a plurality of inwardly projecting flanges fixedly extending from the retaining shoulder and continuously supported by the inner surface in a longitudinal direction... wherein the inner surface is circumferentially continuous" Trull instead discloses a circumferential portion 88 wherein flexible engagement members extend therefrom in a rearward direction. This is entirely different from the novel structure of Applicants' invention of Claim 13 that includes inwardly projecting flanges continuously supported in the longitudinal direction by the circumferentially continuous inner surface.

Further, regarding Claim 11, 12 and 16, Claim 11, 12 and 16 depend from Claims 1 or 13, which as discussed are believed to be allowable. Also, Claim 11 includes that the flanges are radially spaced along the circumferentially continuous inner surface, which is not disclosed by Trull. Accordingly, Claims 11, 12 and 16 are also believed to be allowable. Reconsideration of Claims 1, 11-13 and 16 is requested.

NEW CLAIMS

Claims 22-28 have been added. Claims 22-24 depend from Claim 1 and are supported in the specification as originally filed including in Figure 130A.

Regarding Claims 22-24, Claims 22-24 depend from Claim 1, and are not disclosed by Trull.

Further, regarding Claim 24, Claim 24 is not disclosed by Trull. Rather, Trull discloses that:

The array of flexible resilient engagement members 30 is circumferentially arranged on the circumferential surface portion 88 of the proximal face 86 of the plunger body so that the flexible resilient engagement members are radially inwardly spaced from the outer circumferentially continuous hedge surface of the plunger. The purpose of such radial inset of the engagement members 30 is so that such engagement members do not contact interior surfaces of the syringe barrel during translation of the plunger forwardly or rearwardly through the syringe barrel. (Col. 7, lines 18-53)

Thus, the members 30 do not extend in the radial direction inwardly up to or further inwardly past the proximal face 86. This is also very different from Applicants' invention in which the "inwardly projecting flanges extend radially at least an inner most radial position of the retaining shoulder" of new Claim 26.

Claim 25 is an independent claim in which additional subject matter (also added herein to Claim 1), "wherein the outer surface is defined by a wall that is planar in axial and annular directions" has been added to the Claim 25 provided in the Amendment filed April 25. Therefore, Claim 25 is directed to a syringe having a plunger with a cylindrical wall having a continuous inner surface and an outer surface, the inner surface defining a retaining shoulder formed and extending along the circumference of the cylindrical wall; and a plurality of inwardly projecting flanges extending radially from the continuous inner surface and having a proximal end and a distal end, wherein the distal end connects to the retaining shoulder and the proximal end terminates within the cylindrical wall, wherein the outer surface is defined by a wall that is planar in axial and annular directions. Support can be found in the specification as originally filed, including at Fig 130A. The cited art does not disclose these novel structural features, including "wherein the outer surface is defined by a wall that is planar in axial and annular directions," which as discussed with regard to Claim 1 is not disclosed by Trull. Therefore, Claim 25 is believed to be allowable.

Claim 26 depends from Claim 25, which is believed to be allowable, therefore Claim 26 is also believed to be allowable. Claim 26 is also not disclosed by the cited art. Therefore, claims 22-26 are believed to be allowable.

Claims 27 and 28 depend from Claims 27 and 28, respectively. The subject matter of Claims 27 and 28 is similar to subject matter added to Claim 13 – "the plurality

of inwardly projecting flanges extend inwardly a length to decrease a circumference formed by the circumferentially continuous inner surface." As discussed with regard to Claim 13, Trull does not disclose this novel feature. Accordingly, Claims 27 and 28 are believed to be allowable.

In view of the above amendments and remarks, Applicant submits that the claims are in condition for allowance. Notice to that effect is hereby requested.

Respectfully submitted,

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APPENDIX

IN THE CLAIMS:

1. (Currently Amended) A syringe comprising:

a body; and

a plunger movably disposed within the body, the plunger comprising:

a cylindrical wall having ~~[[an]]~~ a circumferentially continuous inner surface and an outer surface, the inner surface defining a retaining shoulder formed and extending along the circumference of the cylindrical wall; and

a plurality of inwardly projecting flanges fixedly disposed on and radially spaced along the circumferentially continuous inner surface of the cylindrical wall, the plurality of inwardly projecting flanges extending in a longitudinal direction proximal to the retaining shoulder,

wherein the inwardly projecting flanges are continuously supported in the longitudinal direction by the circumferentially continuous inner surface of the cylindrical wall,

wherein the outer surface is defined by a wall that is planar in axial and annular directions.

- 2-10. (Cancelled)

11. (Currently Amended) The fluid injection system of Claim 13 wherein the plurality of inwardly projecting flanges are radially spaced along the circumferentially continuous inner surface of the cylindrical wall and extend in a longitudinal direction proximal to the retaining shoulder.

12. (Previously Presented) The syringe of Claim 1 wherein the plurality of flanges are evenly spaced along the cylindrical wall.

13. (Currently Amended) A fluid injection system comprising:

an injector comprising:

a housing; and

a drive member at least partially disposed within the housing, the drive member comprising:

at least one retaining member; and

one or more outwardly extending flange members; and

a syringe comprising:

a body; and

a plunger movably disposed within the body, the plunger comprising:

a cylindrical wall having an inner surface defining a retaining shoulder formed along an axial length thereof,

wherein the inner surface is circumferentially continuous; and

a plurality of inwardly projecting flanges fixedly extending from the retaining shoulder and continuously supported by the inner surface in a longitudinal direction,

wherein each of the inwardly projecting flanges is spaced along the inner surface of the cylindrical wall,

wherein the plurality of inwardly projecting flanges extend inwardly a length to decrease a circumference formed by the circumferentially continuous inner surface;

wherein the at least one retaining member on the drive member of the injector is adapted to engage the retaining shoulder on the cylindrical plunger wall to enable the drive member to retract the plunger within the body of the syringe; and

wherein the plurality of inwardly projecting flanges on the cylindrical plunger wall are adapted to engage the one or more outwardly extending flange members on the drive member when the syringe body is rotated about its longitudinal axis, the one or more outwardly extending flange members operable to cause the at least one retaining member on the drive member to disengage the retaining shoulder on the cylindrical wall of the plunger upon rotation of the syringe body.

14-15. (Cancelled)

16. (Previously Presented) The fluid injection system of Claim 13 wherein the plurality of flanges are evenly spaced along the inner surface of the cylindrical wall.

17-21. (Cancelled)

22. (New) The fluid injection system of Claim 1 wherein the plurality of inwardly projecting flanges project radially and terminate a distance radially inward from the circumferentially continuous inner surface.

23. (New) The fluid injection system of Claim 1 wherein the inwardly projecting flanges terminate at an axial position and are rigidly supported in the radial direction by the inner surface at the axial position.

24. (New) The fluid injection system of Claim 1 wherein the inwardly projecting flanges extend radially at least to an inner most radial position of the retaining shoulder.

25. (New) A syringe comprising:

a body; and

a plunger movably disposed within the body, the plunger comprising:

a cylindrical wall having a continuous inner surface and an outer surface, the inner surface defining a retaining shoulder formed and extending along the circumference of the cylindrical wall; and

a plurality of inwardly projecting flanges extending radially from the continuous inner surface and having a proximal end and a distal end,

wherein the distal end connects to the retaining shoulder and the proximal end connects to the cylindrical wall,

wherein the outer surface is defined by a wall that is planar in axial

and annular directions.

- 26.(New) The syringe of Claim 25 wherein the inwardly projecting flanges are continuously supported in the longitudinal direction by the inner surface of the cylindrical wall.
- 27.(New) The syringe of Claim 1 wherein the plurality of inwardly projecting flanges extend inwardly a length to decrease a circumference formed by the circumferentially continuous inner surface.
- 28.(New) The syringe of Claim 25 wherein the plurality of inwardly projecting flanges extend inwardly a length to decrease a circumference formed by the circumferentially continuous inner surface.